The #3 greatest weather event across the North Country voted on by the NWS BTV staff during 2014 was the record cold March. Vermont had the coldest March on record with a temperature average of 8.9^{o}F below normal, and nearly two thirds of the Great Lakes remained frozen until early April impacting commercial shipping. This record cold was caused by a deep trough in the jet stream winds across the Eastern United States, which resulted in numerous arctic outbreaks. This cross polar flow in the winds aloft produced a direct feed of very cold air from the Arctic Circle, which is highlighted in Figure 6 below. This highly amplified pattern featured a strong ridge of high pressure across the Western United States, with a deep downstream trough over the eastern two-thirds of the nation. Note the jet stream is a fast ribbon of air between 25,000 and 35,000 feet above the surface and divides warm air to the south and cold air to the north, and typical helps in the development and track of surface cyclones. The counter clockwise circulation around the quasi-stationary area of low pressure over the Hudson Bay region, helped to advect numerous blasts of arctic air across our region during March of 2014.

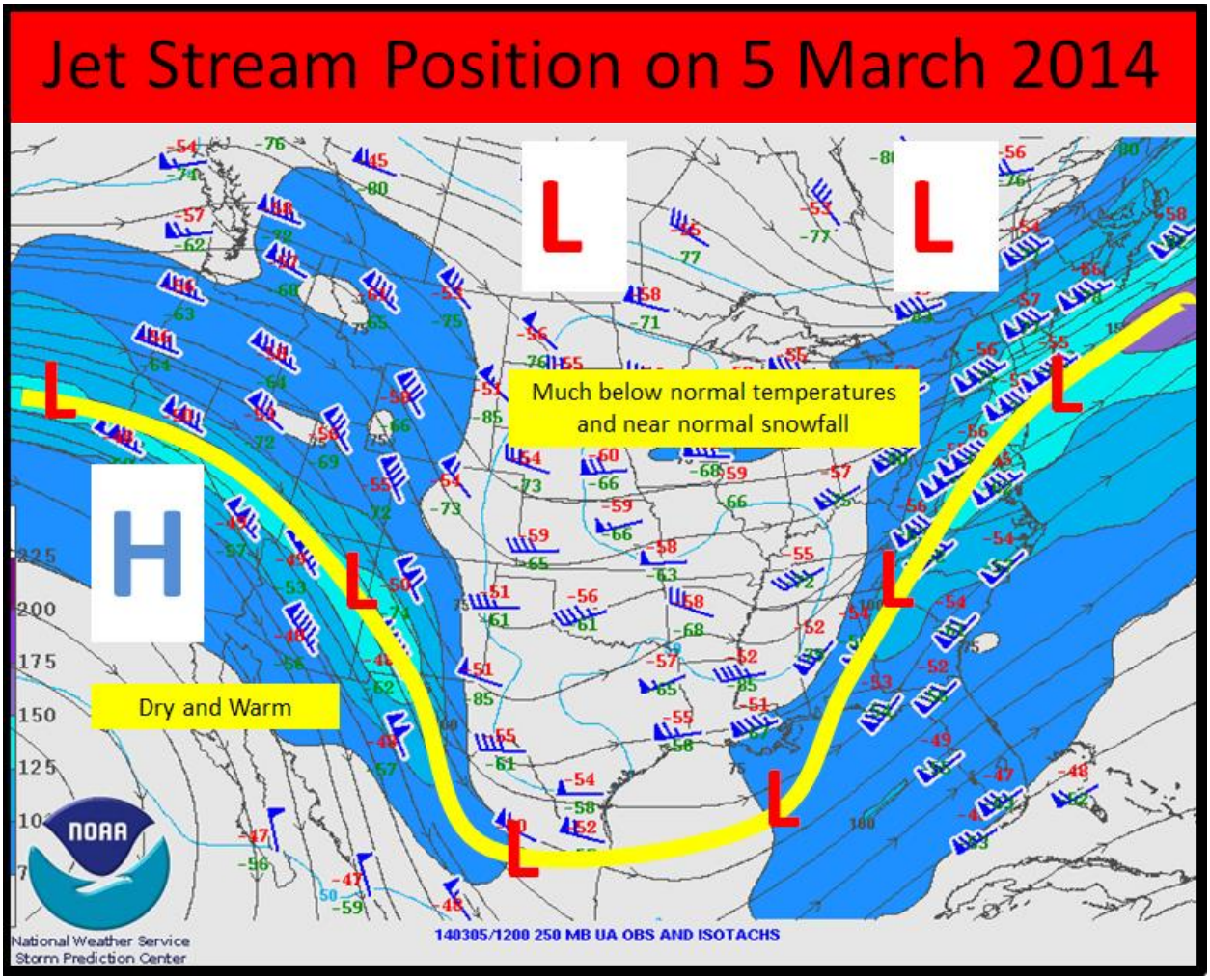

Figure 1: Jet stream position on 15 March 2014.

Figure 2 below shows the daily average temperature departures from March 1st through the March 31s across the entire United States. Noticed in the loop several extremely large departure below normal daily average temperatures (10 to 20°F below normal), highlighted by the darker blue color. These large temperature departures impacted most of the eastern two-thirds of the country, with above normal temperatures over the western United States.

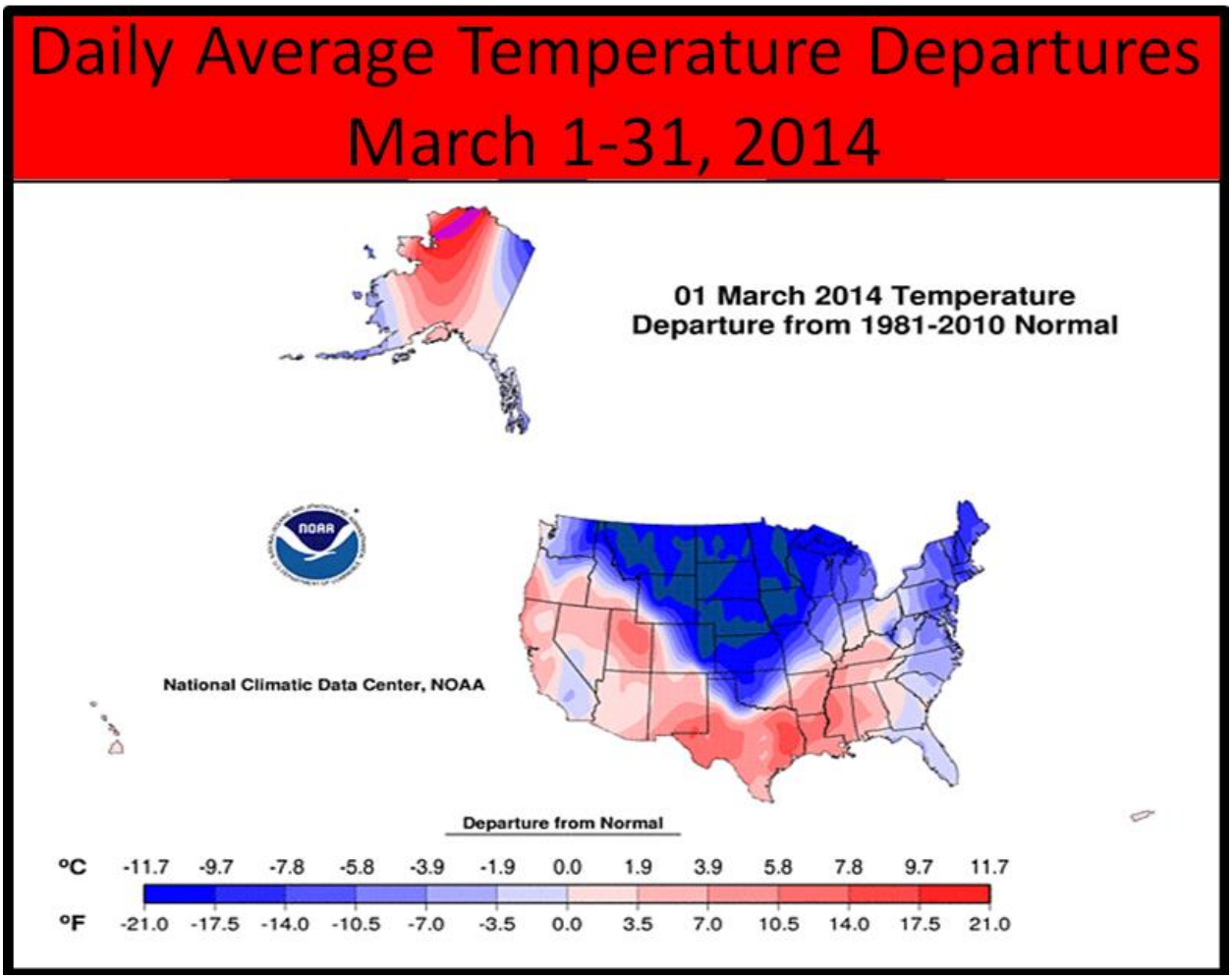

Figure 2: Daily Average Temperature Departures March 1st through March 31st, 2014. (Click image to animate)

Figure 3 shows the statewide temperature ranking for the month of March 2014. Note Vermont rank coldest on record for the 1895 to 2014 period with New Hampshire and Maine ranking #2.

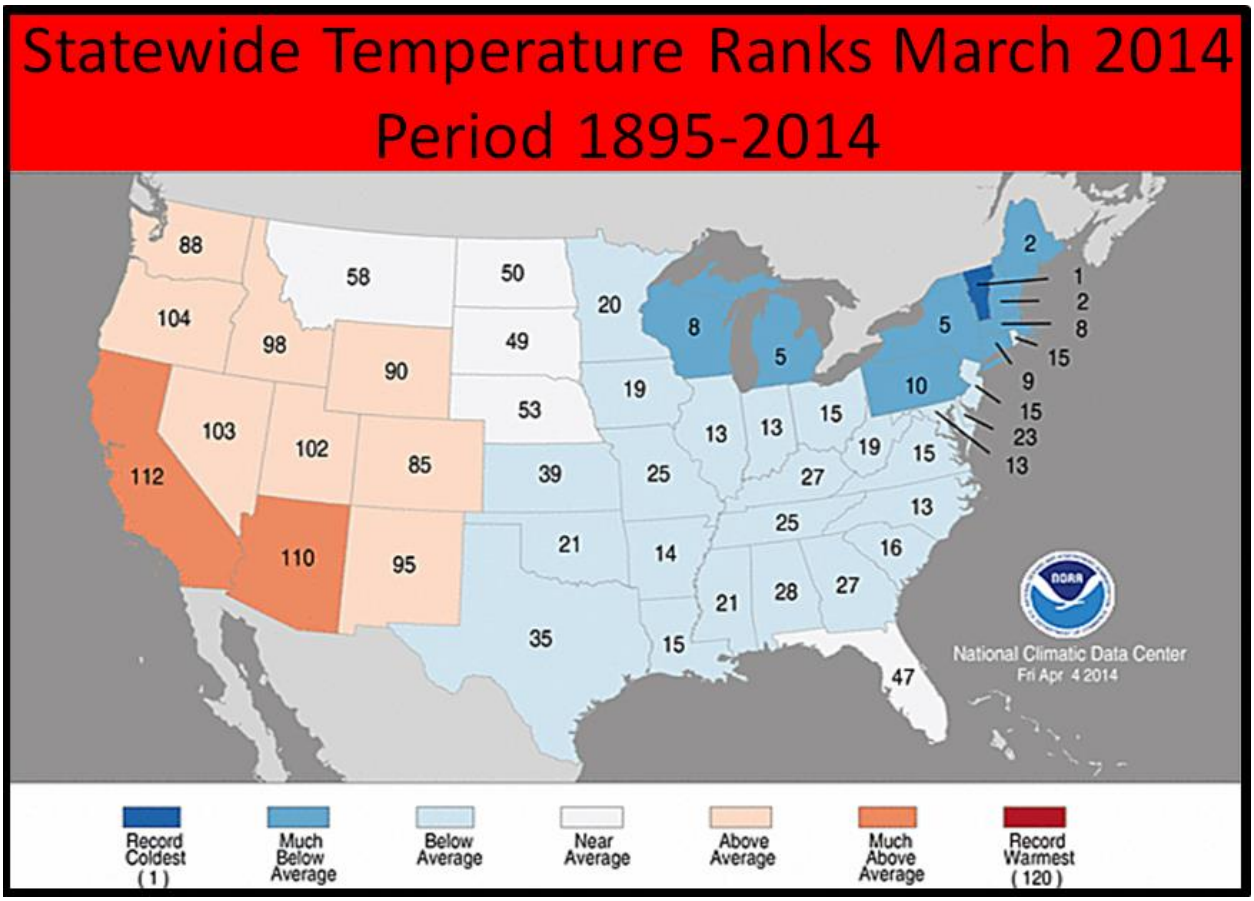

Figure 3: Statewide Temperature Ranks March 2014; Period 1895 to 2014.

Looking at individual sites across the North Country showed Burlington, VT had the 4th coldest March on record, with an average temperature of 22.1°F, which was -8.9°F below normal. Compare this to the average 2012 March temperature of 43.2°F, which was the warmest ever on record, shows the extreme between the two months. This is highlighted in figure 4 below.

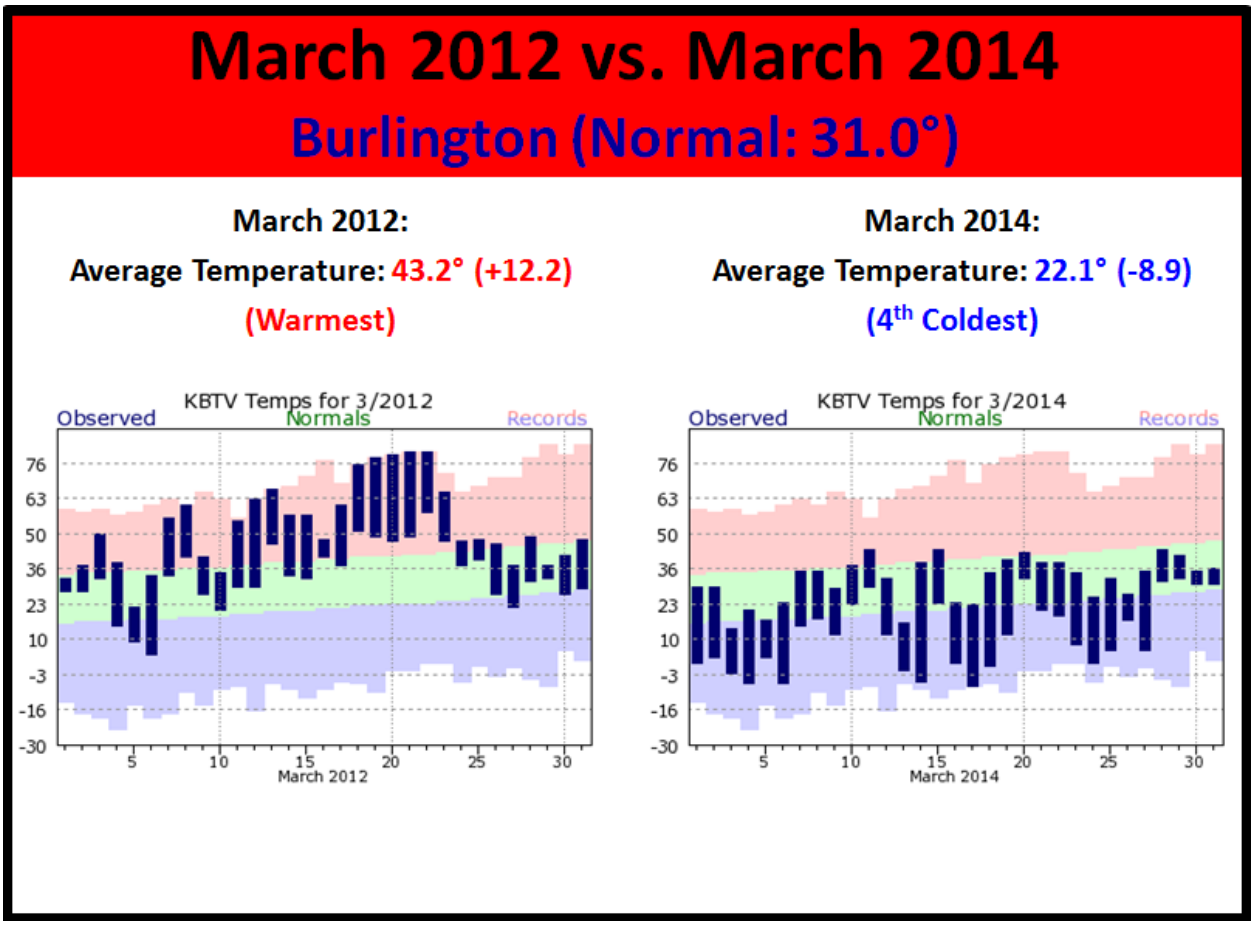

Figure 4: Burlington, VT March 2012 vs. March 2014 daily temperatures.

A similar temperature pattern was observed at Saint Johnsbury, VT with the 2012 average March temperature of 38.8°F or +8.5°F; while 2014 saw an average of 18.9°F or -11.4°F below on normal. Figure 5 shows the daily temperatures observed at Saint Johnsbury during March 2012 and 2014.

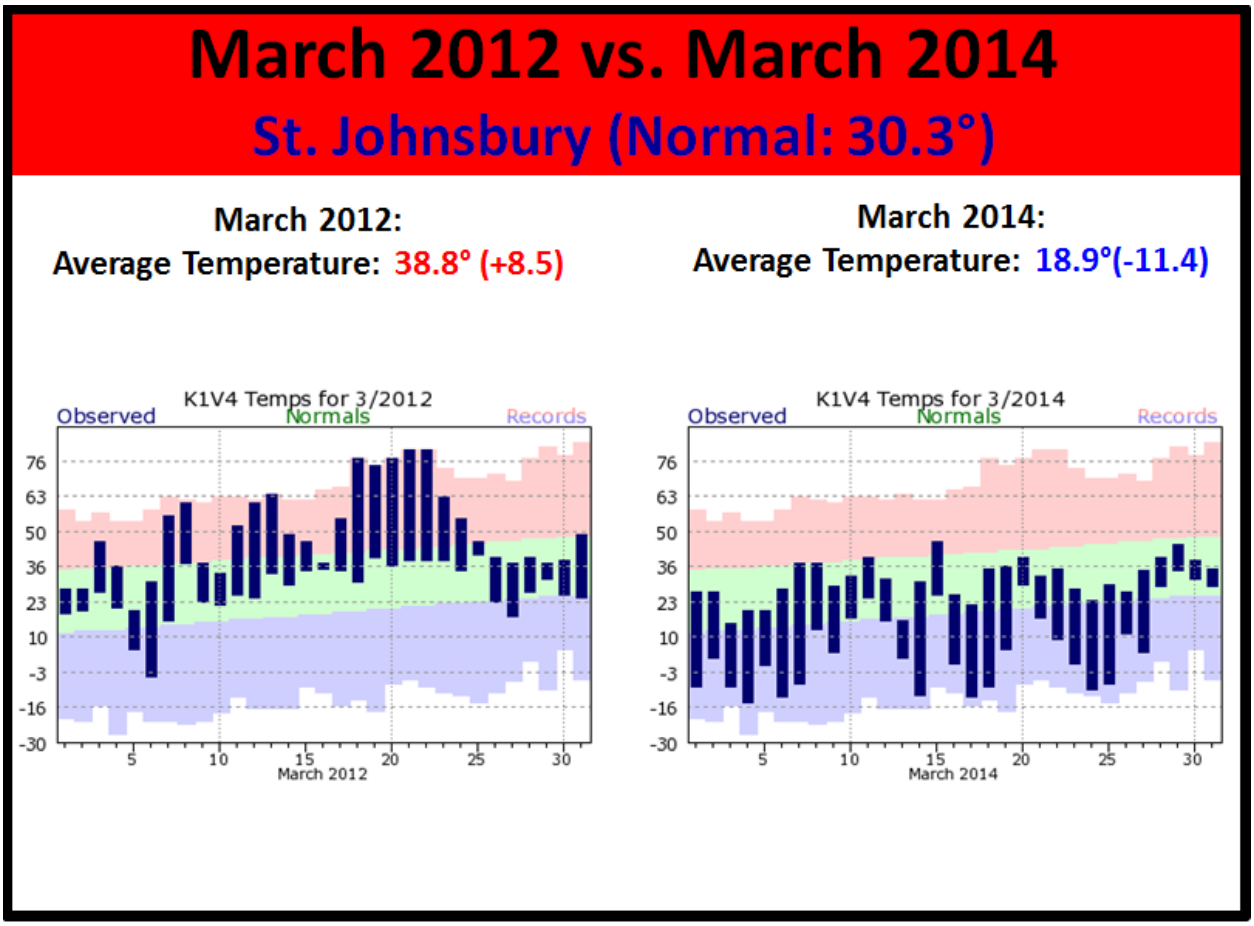

Figure 5: Saint Johnsbury, VT March 2012 vs. March 2014 daily temperatures.

Finally, a similar temperature profile was observed at Saranac Lake, but just colder per its high mountain valley location. From Figure 6, the average March 2014 temperature was 13.1°F or -11.4°F below normal. The warmest temperature observed was 42°F on March 28th, while the coldest was -29°F on March 17th. Saranac Lake experienced 18 days when the minimum temperature was 0°F or colder during the month of March 2014. March 2014 was an extremely cold month across our region and much of the nation, which will probably not occur again for many years.

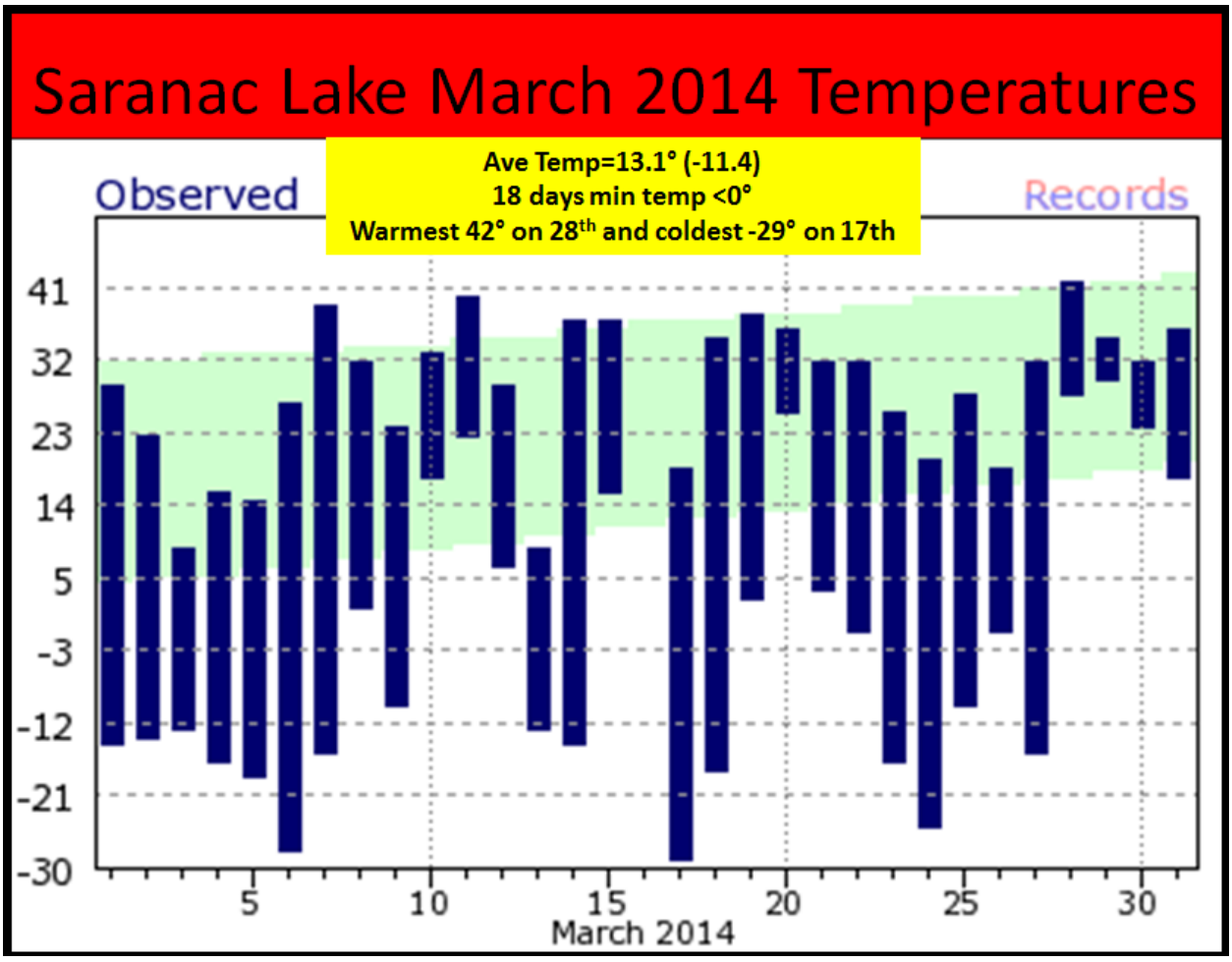

Figure 6: Saranac Lake, NY March 2014 daily temperatures.